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The Number, Weight and Structure of Shortened Branches Formed During Pruning in Intensive Apple Orchards

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Abstract: *This article shows the effect of the rejuvenating pruning method with a 3-4 year cycle of replacing overgrown branches, leaving 4-8, 8-12 and 12-16 fruit buds. It has been established that in overgrowing branches, with the degree of rejuvenating pruning left, the mass, number and structure of branches increase accordingly.*

Keywords: *Intensive apple orchards, fruitful trees, variety-rootstock combinations, number of branches, weight structure, number of flowers, yield.*

Introduction. Today, intensive (accelerated) orchards, along with continuous production of abundant and high-quality crops, require the complete removal of trees in the created orchards, i.e. 2-3 years after transplantation. It should be noted that in intensive orchards with seeds, small- and medium-sized grafted, small-branched, high-yielding varieties can be selected to obtain high and high-quality yields of 25-30 kg / ha, with a complex of resource-efficient agrotechnical care measures.Today, fruit farms need intensive apple orchards to produce abundant and high-quality fruits, and orchards under construction require faster harvesting, i.e. 2-3 years after laying the main plot, and require high land use efficiency.

It should be noted that in intensive apple orchards, slow and slow-growing scions, small branches are used, as well as the selection of high-quality and high-yielding varieties for the efficient use of land in these orchards, the use of a complex of high agrotechnical measures in orchards of 25-30 q / ha will allow you to get a quality crop.

Purpose of the experiment. In the Bukhara region, under the conditions of saline soils and a sharply continental climate, using the methods and levels of cyclic rejuvenation of fruit-bearing branches of zoned apple varieties, pruning of branches is carried out according to a 3-4-year cycle. The experiment was carried out in 2014-2018 in the farm "Amin Khaet Bogi" of the Bukhara region of the Bukhara district. The soil of the farm is an alluvial meadow soil, old-irrigated and classified as saline. The climate is sharply continental, with hot summers and cold winters. This intensive apple orchard was laid out in 2009 according to a 6x4 m scheme.

The most necessary condition for increasing the productivity of fruit trees is the effective use of solar radiation and an increase in leaf surface area. The size of the leaf surface of an apple tree was often determined by the number of grafted rootstocks and varieties, the order of pruning and formation of trees, and the thickness of seedlings.

Plants are the growth biomass of the organism, useful economic crop biomass is photosynthesis. All leaves work with very different performance, depending on how they are located in the trunk of the tree trunk and how they are supplied with solar radiation. Studies and experiments carried out under production conditions show that during periods of growth and development of fifteen-year-old apple trees, it cannot be said that productivity can be increased by bringing the leaf level area to the optimal level of the leaf level area to the normal level. All leaves must work productively and productively enough. Practical differences in the increase in serum activity and the productivity of leaf surface activity are very large depending on the type of leaf activity, the time of leaf formation, the size of the leaf surface, structure, age, the presence of acceptors - organs or tissues that assimilators are intensively involved in building their body, performing physiological processes. or providing a supply of nutrients in the winter-spring periods. The intensity of photosynthesis is also determined by the influence of the environment, external factors. These include light, temperature, carbon dioxide concentration. A group of researchers conducted a study of the influence of methods and levels of pruning of apple trees in Uzbekistan and abroad on the growth, development and productivity of apple trees in various soil and climatic conditions, and scientific recommendations were given for specific conditions.

However, it should be noted that research in this area does not allow to fully reveal the biological characteristics of fruit tree varieties, the fruiting of branches, the cycles of their rejuvenation and normalization. The most important agrotechnical factor in determining the degree of shortening depending on the state of the branches, rejuvenating, normalizing pruning techniques used for cyclic renewal of fruit tree branches for 3-4 years, giving the body a certain shape - increasing productivity and dramatically improving its quality. This event requires a comprehensive and mandatory study of the specific soil and climatic conditions of Uzbekistan. In particular, in the process of growing apple trees in the gardens of the Bukhara region, special attention should be paid to the biological and varietal characteristics of trees, years of fruiting and rejuvenation, as well as standardization of pruning methods and the degree of pruning, and the shape of the branches. Based on the above considerations, it should be noted that the direction of this study is very relevant and relevant, and is key to increasing productivity and improving the quality of fruit trees.

Location and methodology of the study. Scientific research was carried out in 2010-2015 in the farm "Amin Hayot Bogi" of the Bukhara district of the Bukhara region. The Bukhara region is located in a desert zone, and soil formation occurs in a hot and dry climate. The climate of the Bukhara region is sharply continental, the average annual precipitation is 175-210 mm, precipitation is observed mainly in early spring, late autumn and winter, hot sunny days last up to 240 days. The average temperature is 26-30% C. The hottest days are in summer, the average relative humidity is 40-60%.

The soils of the Amin Hayot Bagi farm have long been irrigated alluvial soils and are slightly saline. In soils, the subsoil differs in the surface location of the water surface (2.3 -2.5 m), in terms of mechanical composition, medium soils belong to the category of soils. According to the results of agrochemical studies, the amount of humus on pastures, old and new irrigated fields is 0.8 - 1.4%, nitrogen - 0.06 - 0.12%. The total amount of phosphorus is 0.11-0.18%, the amount of exchangeable potassium is 1.5-3.0%. Also, from the data provided, it was established that the soil and climatic conditions are suitable for growing apple trees. It was revealed that the effect of pruning on the upper part of the trunk of an interactive apple tree is directly related to the degree and method of pruning, the characteristics of the variety and scion, habitat and resource-saving levels of agronomic care. From the practice of fruit growing, it is known that only those trees that have been pruned by a pruning method that ensures high-quality growth and gives annually a moderate yield of branches have the ability to maintain their fertility for a long time and improve the growth of trees. In trees that have lost the ability to grow, along with typical periodic fruiting,

there is a decrease in the level of winter hardiness after years of normal fruiting [1,3,5]. The aging period of trees begins first with the growth of growing branches, and then with the growth of semi-rest and skeletal wood. The main task of resource-saving agricultural technologies is the regulation and management of the relationship between the activities of the vegetative and generative organs of trees. Ultimately, the growth and development of fruit trees improved. Studies conducted in 2010-2015 found that the number, weight and structure of branches increase depending on the degree of pruning and provide optimal tree growth as a result of the pruning method, which rejuvenates the branches formed by pruning varieties and variants per cycle 3- 4 years.

As can be seen from Table 1, the apple tree was pruned from the tree by cyclic alternation of shortening 3-4-year-old branches, giving 1-2- and perennial fruits, and building up perennial fruit branches. The results of scientific experiments showed that 18-85 annuals, 8-47 biennials and 1-18 perennials were removed from the Golden Delicious variety in cuttings. Similar results were obtained on the remaining 2 varieties studied. Studies have shown that the mass of uncut branches in the studied varieties was 18–25% more than in the control variant. Also, according to the results of 6-year experiments, with an increase in the degree of pruning, the number of twigs cut from a tree, the mass of buds and branches increased in all 3 varieties of apple trees, combined with a medium-sized scion. Differences in the number, weight and structure of fruit-bearing branches removed during the annual cyclic alternating pruning show that they depend on the biological characteristics of the varieties and the degree of pruning and grafting.

So, in the experiment it was noted that the number of cut fruit branches is greater in the Renet Simirenko and Golden Delicious varieties, less in the Pervenets Samarkand variety, leaving -8 buds of the crop. (Table 1)

Table 1. The number, weight and structure of branches shortened when pruning an apple tree (average for 2010-2015)

Cutting options that rejuvenate the growing branches that bear fruit	The amount of fruit-bearing buds left, pcs	Year of growth of cut branches			mass of cut branches	The number of cut crop buds
		One year	Two years	Three year	kg	things
Golden Delishes						
Control	will not be shortened	3	2	1	15	23
Rejuvenating cutting method on 3-year cyclic rotation	4-8 8-12 12-16 will not be shortened	88 81 76 31	49 43 39 21	19 16 13 7	4.9 4.1 3.3 2.7	371 309 289 135
Rejuvenating cutting method on 4-year cyclic rotation	4-8 8-12 12-16 will not be shortened	61 53 45 21	17 13 11 10	8 7 5 2	3.8 3.3 2.6 1.9	289 213 198 77
Renet Simirenko						
Control	will not be shortened	1.1	4	2	1.9	77
Rejuvenating cutting method on 3-year cyclic rotation	4-8 8-12 12-16 will not be shortened	99 91 83 45	58 1 4	23 20 15 9	5.3 4.7 4.0 3.1	350 289 235 111
Rejuvenating cutting method	4-8 8-12	72 66	4 3	17 15	3.9 3.2	288 244

on 4-year cyclic rotation	12-16 will not be shortened	59 31	2	11 5	2.5 2.2	177 77
Pervenets Samarkanda						
control	will not be shortened	3	2	2	1.6	27
Rejuvenating cutting method on 3-year cyclic rotation	4-8 8-12 12-16 will not be shortened	85 79 71 23	48 42 3	17 13 10 6	4.7 4.0 3.2 2.4	354 291 230 136
Rejuvenating cutting method on 4-year cyclic rotation	4-8 8-12 12-16 will not be shortened	63 56 50 20	36 2	13 9 7 4	3.5 2.8 2.0 1.5	261 202 144 74
Nsr095 G[1],%						2.1 3.5

The above information is confirmed by such researchers as R. Yunusov and others [2], as well as R. Yunusov [4,6], R.P. Kudryavets U, A.P. Karpov [8]. cyclically alternating pruning and normatively defined reduction of the remaining productive branches, i.e. with an increase in the pruning rate in cutting options, leaving 4-8, 8-12 and 12-16 productive buds of branches left for fruiting. An increase in the mass of cut branches in the cuttings of the varieties Golden Delish, Renet Simirenko and Pervenets Samarkand, respectively, compared with the control variant by 1.2-3.4 kg, 0, -3.4 kg and 0.1-3.1 kg was established. [9, 10, 11, 12]. In the varieties Golden Delish, Renet Simirenko and Pervenets Samarkand studied in experiments and experiments, the branches were cut at normal pruning levels, leaving 4-8, 12-16 joint buds for regeneration and obtaining branches formed during a 3-4-year cyclic turnover, respectively. -54-378, 5-273 and 47-327 we see that more branches were cut, and these numbers had a positive effect on the growth and development of the apple tree.

In this experiment, the number of flowers left on the branches, left for the harvest without shortening the branches, left for periodic rejuvenation for 3-4 years in 3 different varieties of apple trees was 12.3% in Golden Delicious, 11.8% in Renet Simirenko and 13 at Firstborn Samarkand. To obtain 4%, 8-12, 12-16 fruit buds, the number of apple varieties on shortened branches was as follows: 11.5-12.8%. It should be noted that in the studied apple varieties Golden Delicious, Renet Simirenko and Pervenets Samarkand, the rejuvenation of the most productive branches by the MM-106 method on medium-sized grafting for 3-4 years left 8-16 eyes on the fruit-bearing branches.

Conclusion. The results of the study showed that the tendency of the pattern of decrease and increase in body thickness, taking into account the biological characteristics of apple varieties, depends on the method and level of pruning carried out in it. That is, when pruning on branches left to bear fruit, by the anti-aging pruning method on branches bearing 3-4 years of cyclic alternation, leaving 4-8, 12-16 buds at normal pruning levels, depending on the navigation of the apple tree, the weight and number of pruned branches shows that the rate of contraction is increasing. The most important condition for increasing the productivity of fruit trees is the effective use of solar radiation and an increase in leaf surface area. Plants are the growth biomass of the organism, useful economic crop biomass is photosynthesis. All leaves work with very different performance, depending on how they are located in the trunk of the tree trunk and how they are supplied with solar radiation.

Studies and experiments carried out under production conditions show that during periods of growth and development of fifteen-year-old apple trees, it is impossible to talk about the possibility

of increasing the area of leaf cover by bringing the optimal area of leaf cover to a normal level. All leaves must work productively and productively enough. Practical differences in the increase in serum activity and the productivity of the leaf surface are very large, in the construction of the body, in the implementation of physiological processes, or in the winter-spring period, assimilators are actively involved to store nutrients.

References:

1. Ганиева, Ф. А., & Юнусов, Р. (2021). Рост и развития вегетативно-размножаемых подвоев яблони в зависимости от плотности посадки. Столица Науки.М.
2. Atayeva, Z., Yunusov, R., Nazarova, S., & Ganiyeva, F. (2020). INFLUENCE OF CULTIVAR COMBINATIONS AND SEEDLING THICKNESS ON THE FORMATION OF PHYTOMETRIC INDICATORS AND PRODUCTIVITY OF PEAR TREES IN INTENSIVE ORCHARDS. ЦЕНТР НАУЧНЫХ УБЛИКАЦИЙ (buxdu. uz), 10(9)
3. Amrilloyevna, Ganiyeva Feruza, and Yunusov Rustam. THE GROWTH, DEVELOPMENT AND YIELD OF APPLE TREES IN INTENSIVE FRUIT ORCHARDS ARE HARDWOOD CUTTING COMBINATIONS AND THEIR DEPENDENCE ON THE THICKNESS OF SEEDLINGS. NVEO-NATURAL VOLATILES & ESSENTIAL OILS Journal| NVEO (2021): 9591-9595.
4. Ganieva, Feruza. РОСТ И ПЛОДОНОШЕНИЕ ДЕРЕВЬЕВ ПЕРСИКА ВОРОШАЕМЫХ САДАХ В ЗАВИСИМОСТИ ОТ КОНСТРУКЦИИ КРОНЫ. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz) 6.6 (2021).
5. Ganieva, Feruza. ВЛИЯНИЕ ЗАСОЛЕНИЯ ПОЧВ НА ЭКОЛОГИЧЕСКОЕ СОСТОЯНИЕ ОРОШАЕМЫХ ЗЕМЕЛЬ И ФИЗИОЛОГИЧЕСКИЕ ПРОЦЕССЫ, ПРОТЕКАЮЩИЕ В РАСТЕНИЯХ. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz) 6.6 (2021).
6. Ganiyeva, Feruza. КЕСИШ УСУЛИ ВА ДАРАЖАЛАРИНИНГ ОЛМА ДАРАХТИ БАРГ САТҲИГА ТАЪСИРИ. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz) 6.2
7. Артикова Х.Т, Р.Юнусов Х.Х. Салимова .Климатические условия и ристительность субтропической теплой 4 жаркой пустъне
8. Ganiyeva, Feruza. БУХОРО ВОҲАСИ ШАРОИТИДА ОЛМА ДАРАХТЛАРНИ ЎСИШИ, РИВОЖЛАНИШИ ВА ҲОСИЛДОРЛИГИНИНГ КЕСИШ УСУЛЛАРИ ВА ДАРАЖАЛАРИГА БОҒЛИҚЛИГИ.ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz) 6.2 (2020).
9. Ganieva, Feruza. APPLICATION OF CARBOPHOS IN THE CONTROL OF PLANT SPIDERS IN BUKHARA REGION. *ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz)* 7.7 (2021).
10. Ganieva, Feruza. INTENSIV BOG’LARDA PAKANA NOKLARNI TEJAMKOR INNOVATSION TEXNOLOGIYALAR ASOSIDA PARVARISHLASH OMILLARI. *ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz)*6.6(2021).
11. Ganieva, Feruza. БУХОРО ВИЛОЯТИ БУХОРО ТУМАН БОҒИКАЛОН МФЙ ҲУДУДИДАГИ МЧЖ СИЁВУШАГРО” БОҒДОРЧИЛИК ФЕРМЕР ХЎЖАЛИГИ ТУПРОҚЛАРИНИНГ АГРОКИМЁВИЙ ХОССА-ХУСУСИЯТЛАРИ. *ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz)* 8.8 (2021).

12. Yunusov, Rustam. THE EFFECT OF CUTTING (PRUNING) METHODS AND LEVELS IN INTENSIVE GARDENS ON THE FORMATION OF APPLE TREES. *ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz)* 8.8 (2021).

13. Yunusov, Rustam. Studying the different formations of apple trees in intensive orchards. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz) 6.6 (2021).

14. Yunusov, Rustam. Influence of cultivar combinations and seedling thickness on the formation of phytometric indicators and productivity of pear trees in intensive orchards. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz) 10.9 (2020).

15. Yunusov, Rustam. int INTENSIV BOG’LARDA PAKANA NOKLARNI TEJAMKOR INNOVATSION TEXNOLOGIYALAR ASOSIDA PARVARISHLASH OMILLARI.: R.Yunusov, FA Ganieva, OO Orifov. *ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz)* 7.7 (2021).

16. Ganieva, Feruza. ПАКАНА НОК ДАРАХТЛАРИНИНГ ЎСИШИ, РИВОЖЛАНИШИ ВА ҲОСИЛДОРЛИГИНИНГ КЎПАЙИШИГА ВЕГЕТАТИВ ПАЙВАНДТАГ ҲАМДА ИНТЕНСИВ НАВЛАРНИНГ ТАЪСИРИ. *ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz)* 6.2 (2020).

17. Yunusov, Rustam. INTENSIV PAKANA NOK BOG’LARI TUPROG’INING FIZIKAVIY-KIMYOVIY XOSSALARI VA REJIMINING TASNIFI. *ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz)* 7.7 (2021).

18. Yunusov, Rustam. THE GROWTH, DEVELOPMENT AND YIELD OF APPLE TREES IN INTENSIVE FRUIT ORCHARDS ARE HARDWOOD CUTTING COMBINATIONS AND THEIR DEPENDENCE ON THE THICKNESS OF SEEDLINGS. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz)6.6(2021).

19. Yunusov, Rustam. Economical innovative basis for the care of intensive stunted apple varieties.ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz) 6.6 (2021).

20. Yunusov, Rustam. ВЛИЯНИЕ УНИВЕРСАЛЬНОДЕЙСТВУЮЩЕЙ КОМПОЗИЦИОННОЙ СУСПЕНЗИИ НА УРОЖАЙНОСТЬ И КАЧЕСТВО ЗЕРНА В УСЛОВИЯХ БУХАРСКОЙ ОБЛАСТИ. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu.uz) 5.5 (2021).